

REMARKS

Claims 1-4, 6-9, 11, 15, 16, 18, and 35 – 40 were addressed in the subject office action. Claims 18 and 38 are now canceled.

In the office action, claims 1-4, 6-9, 11, 15, 16, 35, 37 and 38 were rejected under 35 U.S.C. §112, first paragraph.

Claims 18 and 35 - 40 were rejected under 35 U.S.C. §102.

Claims 1-4, 6-8, 11, 15, 16, 18 and 35 – 40 were rejected under 35 U.S.C. § 103.

The disclosure is objected to for the use of a degree symbol to indicate temperature on the Kelvin scale.

Objection to the Disclosure

The stated objection regarding the use of a degree symbol for temperatures Kelvin has been addressed by the foregoing amendment.

New Claims 41 - 58

The specification as filed provides support for new claims 41 - 54 on the same basis that it supports claim 1, as discussed below. New claims 55 – 58 are supported in the same way as claim 40 and by the specification at page 6, lines 17 – 37.

Rejection of Claims 1-4, 6-9, 11, 15, 16, 35, 37 and 38 under 35 U.S.C. §112, first paragraph.

The above-identified claims stand rejected under 35 U.S.C. §112, first paragraph on the basis that there is allegedly no support for the limitation in the independent claim (claim 1) that the bridge section is free of a layer of tungsten. The Examiner asserts that nothing in the specification excludes tungsten “in any particular form.” It is also asserted that the specification lacks support for the limitation in dependent claim 38 for a bridge section free of metal identified by its melting temperature.

Regarding the “layer of tungsten” exclusion of claim 1, the specification expressly contrasts the disclosure to that of Benson et al., which is described as having a bridge with a “tungsten layer” (see the specification at page 3, line 24 – page 4, line 8). The Applicant respectfully submits that it this passage makes clear that he was in possession of, and has

enabled, an igniter without tungsten in the form of a layer, as defined in claim 1, as well as without tungsten in any form. (The Examiner is reminded that there need not be in hanc verba support in the specification (see, e.g., *In re Wright*, 9 U.S.P.Q. at 1651, citing *In re Smith*, 481 F.2d 910, 914, 178 U.S.P.Q. 620, 624 (CCPA 1973); *In re Anderson*, 176 U.S.P.Q. 331 at 336). All that is required is that the description allow persons of ordinary skill in the art to recognize that the inventor invented what is claimed. See *Vas-Cath Inc. v. Mahurkar*, 19 U.S.P.Q.2d 1111 at 1116 (Fed. Cir. 1991)(finding the claims of a utility patent supported by, and entitled to priority of, an earlier-file design patent application.)

Claim 38 is canceled.

Rejection of Claims 18 and 35 – 40 under 35 U.S.C. §102

The above-identified claims stand rejected under 35 U.S.C. §102 as being anticipated by PCT Publication WO 9742462 to Martinez-Tovar (“Martinez-Tovar (PCT)”). The rejection of claim 18 was based on the Examiner’s equating “consisting essentially of” as “comprising”. Claim 18 is canceled.

The inclusion of claim 35 among the rejected claims appears to be inadvertant, because that claims is a dependent claim and the base claim has not been rejected on this basis. Withdrawal of the rejection of claim 35 under §102 or clarification of the basis of the rejection is respectfully requested.

The rejection of claims 36 - 38 reflects an interpretation of “consisting of” that is different from what the Applicant has advanced, specifically, the Examiner does not view “consisting of” in claim 36 as effective to exclude a layer of tungsten in the bridge section as shown by Martinez-Tovar (PCT). Similarly, the “consisting essentially of” language of claim 39 was not accorded its intended exclusionary effect.

Language has been added to clarify claim 36 to provide explicit exclusions for a layer of tungsten on the bridge section, thus providing a distinction from Martinez-Tovar (PCT). Claim 39 is canceled.

The rejection of claim 40 is traversed because, as set forth in the accompanying declaration, the device described in Martinez-Tovar (PCT) does not function as described in that claim because the tungsten layer in the Martinez-Tovar (PCT) igniter does not melt before the semiconductor bridge vaporizes. This claim has been amended to clarify that the melting action encompasses all metal on the semiconductor bridge. Therefore, even if

the titanium shown in Martinez-Tovar (PCT) melts before the bridge vaporizes, the fact that the tungsten does not melt before the vaporization means that the device does not operate according to claim 40.

Rejection of Claims 1-4, 6-9, 11, 15, 16, 18 and 35 – 40 under 35 U.S.C. § 103

The above-identified claims stand rejected under 35 U.S.C. §103 as being obvious over U.S. Patent 4,976,200 to Benson et al. in view of the abstract of DE 4222223 to Brede et al. (“DE 4222223”)(cited by the Examiner as “Dipling”). The Examiner asserts that Benson et al. show an igniter comprising tungsten on a semiconductor bridge, that DE 4222223 shows a titanium bridge igniter, and that it would be obvious to use the titanium bridge shown by DE 4222223 in place of the tungsten shown by Benson et al. to attain improved mechanical characteristics, improved resistance to scratching and chaffing and improved thermal coupling.

The Applicant respectfully submits that the asserted motives for combining the teachings of the cited references lack a proper factual basis. The attached draft Declaration under 37 C.F.R. §1.132 addresses why the teachings of the cited references are not properly combinable and why they do not render obvious the invention as claimed.

Briefly restated, the Declaration states that the tungsten shown by Benson et al. is known to be tougher than the titanium shown in DE 4222223 and the configuration of the tungsten is not limited to that of a bridge structure as is the titanium of DE 4222223 to define the firing characteristics of the bridge, and so is not as vulnerable to scratches and the like as the titanium bridge shown in DE 4222223. Therefore, the mechanical properties cited by the Examiner do not support the stated rejection. In addition, the Declaration states that the Benson et al. device does not rely on thermal transfer as does the igniter of DE 4222223, so that motive does not support the stated rejection. Furthermore, the Benson et al. igniter has a metal layer that is much bigger than the titanium bridge shown in DE 4222223, so using the titanium bridge disclosed by DE 4222223, or even simply substituting the titanium for the tungsten, would not provide improved thermal coupling as proposed by the Examiner.

Moreover, as discussed in the declaration, to use the titanium bridge of the igniter shown in DE 4222223 in the device shown by Benson et al. would require that the mode of operation of one device or the other be significantly changed: either the Benson et al. igniter would have to rely on heat transfer for its operation or the titanium would have to form a plasma. However, a combination of teachings from prior art references that would require a change in the basic mode of operation of one of the references is not a proper basis for rejection of a claim under 35 U.S.C. §103. See MPEP 2143.01(VI).

In addition, the enclosed declaration states that to replace the tungsten of the Benson et al. device with titanium, as proposed by the Examiner in rejecting the claims, would increase the energy firing requirements relative to the Benson et al. device. Since Benson et al. advocate reducing the energy requirements of the igniter, the asserted combination runs contrary to the teachings of the prior art. In other words, the prior art teaches away from the asserted combination.

Finally, even if the proposed combination were obvious, nowhere does the prior art predict the unexpected result found by the Applicant as a result of making an igniter with a semiconductor bridge having a titanium layer without tungsten: less energy is required for its function than even for a semiconductor bridge with no metal on it (see the specification, page 4, lines 9-20).

Claim 40 has been amended so that the melting that occurs before the vaporization refers to any metal on the semiconductor bridge. New claim 55 is intended to describe this same requirement in alternative language. These claims are allowable over the applied references because neither of the references disclose a method for initiating a semiconductor bridge igniter as set forth in that claim or suggest how the devices they disclose could be modified so that they function in the way defined in claim 40. As set forth in the declaration, the Benson et al. igniter contains a tungsten layer that does not melt prior to vaporization of the bridge and the DE 4222223 igniter lacks a semiconductor bridge and functions at temperatures below the melting point of titanium. Neither reference teaches, suggests or provides a motive for melting all metal from a metal-layered semiconductor bridge before the bridge vaporizes.

For all of the foregoing reasons, the stated ground of rejection is respectfully traversed.

New Claims

New claims 41 - 52 are allowable at least because they depend from allowable base claims.

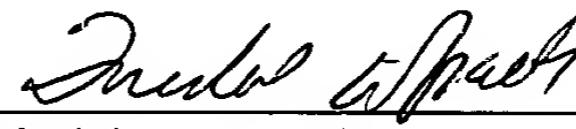
Claim 53 and claim 54 are allowable at least for the same reasons claim 1 and claim 36 and the claims dependent therefrom are allowable. New claims 55- 58 are allowable for reasons discussed above regarding claim 40.

Each of the stated grounds of rejection have been addressed or traversed by the foregoing amendments and/or remarks, and/or by the accompanying declaration.

Reconsideration and re-examination of the pending claims is respectfully requested.

If there are any additional charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 06-1130.

Respectfully submitted,



Frederick A. Spaeth
Registration No. 33,793
Attorney for Applicant

Cantor Colburn LLP
55 Griffin Road South
Bloomfield, CT 06002
Customer No. 23413
Telephone: (860) 286-2929
Facsimile: (860) 286-0115